# Author Index to Volume 14


A

Abbot, J. 235
Abdel Ghany, M. A. 830
Abdullah, N. 778
Abou el Naga, H. H. 808, 830, 1094
Abou-Kassem, J. H. 60
Abugel, B. W. 96
Acs, G. 51
Adams, D. M. 50
Addison, G. E. 196
Adler, S. B. 769
Aflaki, R. 16
Agarwal, V. B. 324
Ahn, B. H. 900
Akgerman, A. 527
Akhtar, A. 159
Akhtar, N. 1005
Alberty, R. A. 1067
Albright, J. C. 928
Al-Fariss, T. F. 1043
Ali, J. 149
Ali, M. F. 269
Allen, D. T. 287
Allen, L. S. 348
Allen, M. B. 84
Al-Mashahadani, A. 625
Al-Mutaz, I. S. 1043
Alston, R. B. 118
Amajor, L. C. 622
Ambraseys, N. 6
Ambrose, J. G. 922
Anderson, A. R. 651
Anderson, W. G. 924
Andreieff, P. 635
Appetiti, A. 213
Arbabi, H. 1091
Arizmendi, L. 550
Arpino, P. 1074
Arulalan, G. R. 1048
Arviset, D. 170
Asgarpour, S. 987
Ashcroft, S. J. 268
Ashkuri, S. 147
Atlas, R. M. 615
Audeh, C. A. 238
Ayel, J. 558
Ayral, T. E. 208
Azar, J. J. 936
Aziz, K. 60

B

Babusiaux, D. 917
Bailey, L. 280
Baird, M. J. 255
Baker, P. D. 94
Baker, R. C. 145
Bakshi, N. N. 801
Bakke, S. 353
Balakrishnan, M. 275
Baldwin, R. W. 680
Balkenbush, R. J. 657
Ball, A. 824
Bandopadhyay, S. 922
Bansal, B. B. 608
Bapat, P. M. 201
Bardon, C. 294
Barlow, R. C. 1060
Barna, D. A. 210
Barnes, R. A. 327
Barnett, S. M. 795
Barnwell, J. 153
Barreto, R. 839
Barshad, Y. 528
Bartel, J. E. 21
Bartlett, G. W. 444
Bartz, W. J. 859
Bashki, A. S. 1055
Basu, A. K. 375
Batycky, J. P. 986, 998
Baugartrer, S. A. 440
Baughen, D. 997
Baxendale, D. 711
Baylor, V. B. 199
Bazin, G. L. 731
Beavers, J. A. 883
Behan, F. P. 875
Behar, E. 121
Behar, F. 502
Behie, A. 57
Beimeech, B. J. 831
Beirute, R. M. 44
Bell, A. T. 496
Bell, R. L. 486
Benchecrour, N. 1070
Bendari, S. A. 830
Bennet, C. O. 405
Bennett, C. O. 639
Bennion, D. W. 874
Bentsen, R. G. 422, 690, 810
Berkhout, A. J. 339
Bernard, S. W. 454, 455
Bernardo, J. M. 550
Berne, M. 325
Berry, W. E. 883
Berthelin, M. 1053, 1054
Bertrand, M. 273
Bessette, P. A. 855
Beydoun, Z. R. 623
Bhan, O. K. 1092
Bhandari, V. A. 1050
Bhowmick, M. 533
Bia, P. R. 425
Bigelow, E. L. 345
Biju-Duval, B. 335
Billaud, F. 776
Bingham, M. D. 651
Bird, G. W. 694
Birk, R. H. 232
Birrell, N. D. 705
Bishop, L. E. 278
Biss, N. C. 143
Bizon, G. 340
Black, A. D. 28
Black, G. 280
Blitzer, C. R. 905
Bodennec, G. 611
Boffey, D. A. 826
Bogdanovic, V. 524
Bohannon, J. M. 973
Bohi, D. R. 919
Boitiaux, J. P. 241
Bol, G. M. 937
Bollfrass, C. A. 43
Bolzer, M. 386
Bond, J. 187
Bonis, M. R. 591
Bonnifay, P. 548
Boon, J. 694
Borsetti, A. M. 335
Borwankar, R. P. 402, 403
Bossi-Codreanu, D. 425
Bott, D. J. 236
Boulet, R. 502
Bourbie, T. 19, 20
Bourgoyne, A. T. 22, 660
Bourseau, P. 512
Bowden, J. N. 818
Boyle, H. F. 326
Brat, J. B. 661
Bravo, J. L. 211, 767
Breaux, E. J. 70
Bremer, R. E. 17
Briant, J. 265, 557
Brill, J. P. 150
Brinkman, D. W. 481, 1092
Broadman, H. G. 908
Broome, J. H. 973
Bross, P. D. 491
Brouse, M. 648
Brower, K. R. 114
Brown, R. J. 472
Brown, R. L. 1037
Bruce, R. W. 862
Bruining, J. 132
Brutto, P. E. 621
Brych, J. 953
Buchanan, W. L 115
Buck, V. 1084
Buckley, D. H. 828
Bucko, R. J. 570
Bukanovansky, M. 1009
Bukkems, F. H. J. 101
Bul, S. 217
Bunge, A. L. 407
Burck, L. J. S. 347
Burger, J. 392
Burke, P. A. 303
Burley, R. W. 149
Burrows, C. R. 845
Busch, K. W. 889
Busch, R. A. 476
Bushman, J. B. 1108
Buslov, V. M. 368, 369, 370
Buss, G. Y. 111
Busson, G. 865
Butler, R. G. 618
Butt, J. A. 330
Buurman, G. 101
Byrd, L. T. 599

C

Cady, G. V. 915
Caldwell, D. L. 197
Caldwell, R. H. 650
Calistrat, M. M. 843
Callaghan, I. C. 120, 452
Calleja, G. 216
Camache, F. 790
Cambridge, V. J. 802
Cameron, G. M. 712
Campana, J. E. 560
Campbell, B. T. 445
Campbell, J. E. 427
Capps, B. J. 1083
Caram, H. S. 511
Carbonell, R. G. 487, 488
Carmona, I. 296
Carr, N. L. 218, 585, 586
Carra, S. 500
Carrazza, J. 518
Carre, D. J. 559
Carroll, J. F. 141
Carruthers, J. D. 507
Carson, K. 999
Carter, R. D. 406
Castex, H. 272
Cavendish, J. C. 315, 316
Cen, P. L. 220
Chan, A. F. 64
Chandel, R. 195
Chandelle, V. C. 953
Chandler, M. J. 832
Chandrasekaran, S. 844
Chang, H. J. 513
Chao, T. S. 806
Chapman, R. K. 701
Chappelear, J. E. 633
Chardaire, C. 230
Charles, J. G. 991
Charlesworth, J. M. 291, 292
Charlton, J. S. 105
Chasan, D. 856
Chastain, T. 959
Chatta, M. S. 563
Chatzis, I. 136
Chaumette, P. 297
Chauvin, L. 212
Chaverot, P. 1053, 1054
Che, S. C. 494
Chen, C. C. 66
Chen, H. H. 362
Chen, L. Y. 365
Chen, N. Y. 504, 779,
Chen, S. H. 270
Chen, S. M. 987
Chen, W. N. 220
Cheng, H. C. 214
Cheung, P. R. 44
Chew, G. 706
Chierici, G. L. 1076

Childers, J. C. 571
Chirlin, G. R. 88
Chowdhry, D. V. 363
Christopher, N. S. 312
Chung, E. S. N. 1046
Ciaraldi, S. W. 306, 942
Clancy, J. P. 155
Clark, A. J. 852
Clark, D. B. 569
Clark, D. G. 450, 700,
Clark, P. A. 98
Clark, P. E. 410
Clements, W. R. 944
Cloud, J. E. 410
Coats, K. H. 677
Cody, C. A. 1088
Coe, H. H. 841
Colakovic, N. 878
Colantoni, P. 335
Collarini, C. R. 911
Colonomos, P. 804
Conser, R. E. 196, 489
Conway, M. W. 142
Corma, A. 780
Cornee, A. 865
Costa, E. 216
Courteille, J. M. 950
Coussy, O. 336, 337, 627
Crager, B. 1002
Craig, B. D. 885
Cranauer, D. C. 872
Creeser, D. J. 1006
Critchfield, L. 207
Croft, M. 37
Crolet, J. L. 591
Cromwell, M. D. 1032
Crouse, P. C. 603
Crowe, C. W. 127
Crynes, B. L. 513, 775
Csicsery, S. M. 249
Cuckler, J. H. 584
Cuiec, L. 923
Culham, W. E. 414
Curtis, C. W. 237
Curzon, A. E. 822
Cusano, C. 283
Cutler, R. A. 89
Cutman, M. 577
Cvengrosova, Z. 510
Czaja, L. 687
Czerwinski, J. L. 621

D

Dabkowski, J. 307
Dahan, R. A. 188
Dahl, C. A. 906
Daily, D. A. 701
Dale, B. A. 457
Danaczko, M. A. 704
Daneshy, A. A. 951
Daniels, L. C. 491
Danner, R. P. 538
Darden, C. F. 371
Dareing, D. W. 24
Darling, J. 562
Darme, C. 189
Das, K. 431, 432
Dattareya, S. 205
Daubert, T. E. 1105
Davidson, M. J. 3
Davis, H. T. 117, 267
Davis, J. 482
Davis, J. E. 578, 831
Davis, P. J. R. 713
Dawans, F. 594
De, B. R. 640
Deacon, R. T. 324
Dean, P. D. 464
Dearden, J. H. 826
de Bruijn, H. J. 935
Deckwer, W. D. 797
Decowsky, G. M. 572
De Faveri, D. M. 321
de Gee, A. W. J. 554, 1109
Degobert, P. 609, 1121
De Groat, C. 929
De Hoon, C. J. J. 168
De La Tour, X. B. 1115, 1116
Delbeck, W. I. 880
de L. Musgrove, A. R. 902
Delshad, M. 54
Dempsey, M. K. 198
Denison, E. B. 158
Denoyelle, L. 394
Depeyre, D. 225, 230
Deroo, G. 632, 633
De Silva, A. 112
Desouky, S. E. M. 90
de S. Wickramaratne, G. A. 596
Devotta, S. 282
De Vries, A. S. 79
Dhulesia, H. 1059
Diaz, J. C. 423
Dibbern, H. C. 1079
Dickinson, R. R. 897
Dietz, D. N. 132
Dietzel, J. H. 74
Di Franco, R. B. 413
Dirk, R. H. 231
Djordjevic, B. 524
Do, D. D. 252
Dobson, B. J. 360
Dogane, I. 798
Doi, T. 320
Doleschall, S. 51
Domingo, F. 216
Dorbon, M. 545, 805, 1074
Dotterer, G. O. 544
Doty, D. R. 166
Douaud, A. 314, 545
Dougherty, E. L. 428, 434, 598, 607, 912
Douglas, B. 736
Douglass, T. R. 662
Dranchuk, P. M. 810
Drici, O. 133
Driescher, H. 847
Duckworth, D. F. 330
Ducreux, J. 611
Dunand, A. 73
Dunbar, M. J. 613
Dunn, J. 1010
Dunzru, D. 229
Durant, J. P. 1104
Dutta-Roy, K. 166

E

Eberle, A. C. 746
Eckles, W. W. 606
Economides, M. J. 419
Edge, K. A. 562
Edmiston, K. 382
Edmonds, E. A. 105
Edgson, J. J. 135
Ehlig-Economides, C. 419
Ehrman, P. 851
Eilers, L. H. 47
Eissler, V. C. 710
El-Arabi, M. 309
Eldridge, J. W. 505, 515
El-Khatib, N. 72
Ellig, D. L. 227
Ellinas, C. P. 709
Elliott, L. R. 659
Ellis, D. 25
Ellis, N. 999
Elsmore, R. 835
Emanuel, A. S. 972
Engelhardt, F. R. 612, 619
Ershagi, I. 16, 607
Ertekin, T. 399
Espitalie, J. 632, 633
European Wax Fed. Task Force 540
Eustes, A. W. 947
Evans, E. M. 111
Evans, J. 590, 882
Eyen, J. J. 1021
Eyles, D. R. 5
Eyre, T. S. 829, 1091

F

Fabre, M. 950
Facchiano, D. L. 583
Fahy, L. J. 116
Fair, J. R. 211, 767
Falconer, J. G. 958
Fanchi, J. R. 87
Farber, J. N. 792
Farkas, E. 51
Farouq-Ali, S. M. 390, 400, 686, 693
Farquharson, R. G. 684
Farrar, G. L. 1042
Fasone, S. 864
Fausto, C. Y. 1041
Favre, A. 502
Favre, J. 1114
Febus, J. S. 45
Fekete, L. A. 996
Feng, H. Y. 222
Fennema, R. L. 573
Fenner, H. L. 93
Fernandez, F. 329
Ferschneider, G. 473
Feugier, A. 803, 1104
Field, B. J. 21
Fillippone, W. R. 342
Finn, L. D. 704
Firoozabadi, A. 794
Fishman, D. 715
Fitzgerald, D. D. 351
Fleischauer, P. D. 1103
Fleming, G. C. 129
Fleming, M. L. 122
Flicoteaux, C. 230
Flock, D. L. 807
Floess, J. K. 288
Flores, J. 681
Flynn, J. E. 593
Fogler, H. S. 404
Fontenot, J. E. 367, 653
Ford, T. J. 1058
Forsyth, P. A. 630
Foster, C. G. 960, 961
Frame, E. A. 818
Franklin, J. L. 377
Fraser, M. D. 261
Frauenthal, J. C. 413
Freas, R. B. 560
Freedman, L. 313
Freeman, M. M. R. 620
Freund, E. 776, 1053, 1054
Fridley, D. 604
Friedlander, R. H. 765
Frieze, P. 707
Frisch, M. 148
Fruehauf, W. 601
Fry, V. A. 7
Fujimoto, K. 789
Fujitani, Y. 1063
Fujitso, H. 1061
Fukuju, Y. 867
Fukuyo, K. 1049
Furimsky, E. 219
Fuxig, W. 568

G

Gadon, J. L. 708, 1115, 1116
Gaiya, L. G. 523
Galvin, P. 1104
Ganer, B. L. 352
Garber, R. 311
Garcia, C. E. 793
Garg, R. P. 480, 529
Garrett, D. L. 158
Gast, W. F. 308
Gateau, P. 546
Gates, B. C. 791
Geertsma, J. 418
Gelderblom, D. 143
Gerard, M. G. 18
Gesink, J. C. J. 144
Gethin, D. T. 823
Ghosh, S. 260
Giacoppe, F. 764
Giannetto, G. E. 1068
Gibeau, J. P. 807
Giesbrecht, P. 990
Gilbert, R. J. 901
Giles, A. J. 128
Ginn, R. F. 210
Gjolberg, O. 322
Glaso, O. 411
Glavincevski, B. 819
Glowka, D. A. 29, 945
Goist, I. 341
Goldberg, D. E. 720
Goldman, S. 766

Goldsmith, R. 655
Golec, R. A. 760
Golyshev, S. I. 626
Gomez, M. R. 839
Gonzalez, E. 804
Gonzalez, J. A. 80
Goodwin, B. A. 702
Gordon, E. 464
Gorell, S. B. 83
Gorring, R. L. 436
Gorter, J. 981
Goto, H. 828
Gottardi, G. A. 1076
Gottschling, J. C. 130
Govind, R. 1045
Graham, J. R.. 508
Grandin, J. 649
Grasshof, H. D. 582
Grauman, J. S. 886
Gray, J. 925
Gray, T. W. 332
Green, M. D. 156
Greenley, D. E. 948
Greenwood, J. H. 727, 1009
Gregg, J. M. 747
Grehier, A. 299
Groetzinger, P. V. 1120
Grundy, D. W. 287, 522
Guibet, J. C. 279
Guidorzi, R. P. 1076
Guillot, A. Y. 647
Guillot, D. 73
Guin, J. A. 237
Guisnet, M. R. 1068
Gulari, E. 528
Gulder, O. L. 819
Gunn, N. J. 377
Gupta, A. K. 483
Gupta, R. 854
Gupta, S. K. 893

H

Haack, T. K. 948
Haavie, T. O. 449
Haering, U. 856
Hagen, D. A. 451
Hagiwara, T. 646
Hahn, P. S. 76, 77
Halder, C. A. 834
Hale, D. 177, 465, 467, 474, 716, 724, 730, 1028, 1030, 1039
Halen, R. M. 1029
Hall, B. E. 978, 979, 980
Hall, K. R. 535, 769
Hall, M. A. 343
Hammershaimb, H. U. 253
Hancock, W. P. 451
Hangs, F. E. 475, 1014
Hanley, W. J. 573
Hanna, H. S. 69
Hanratty, T. J. 285, 286, 401
Hanson, D. N. 1052
Hardage, B. A. 349
Hardy, J. E. 531
Harle, O. L. 1102
Harmon, R. A. 696
Harms, W. M. 45
Harper, M. 997
Harrington, J. P. 941
Harrison, P. 357, 466, 1024
Harstick, C. S. 832
Harvey, T. G. 519
Hasan, A. R. 420
Haseltine, R. P. 197
Haskins, D. E. 212
Hau, C. S. 221
Haun, R. 748, 749
Hausler, R. H. 303, 884
Hayes, E. R. 145
Hayre, J. 1027
Heacock, D. W. 957
Headworth, C. 706
Heasler, H. P. 4
Heckbert, S. 739, 740
Hedenburg, J. F. 284
Heggs, P. J. 778
Heijna, H. B. 132
Heinemann, H. 496
Heinen, R. G. 1120
Heller, J. P. 59, 446
Hellmuth, W. W. 544
Hemeida, A. M. 90
Hemphill, D. H. 1020
Hensel, W. M. 439
Herbert, P. 1057
Herbert, R. 962
Hernandez, P. M. 879
Herring, G. D. 138
Herz, R. J. 317
Herzfeld, R. 930
Heywood, C. H. 470
Hicks, I. A. 477
Higgins, D. 280
Hildebrandt, M. R. 832
Hill, A. D. 971
Hill, E. C. 835
Hill, T. J. 147
Hinds, A. A. 944
Hippman, A. 374
Hirasaki, G. J. 113
Hiskakis, M. 285, 286
Hissa, R. 581
Ho, A. T. 833
Ho, T. C. 757
Hohnholt, J. F. 1041
Holden, W. R. 22, 660
Hollander, C. R. 950
Holt, C. A. 933
Homsy, G. M. 83
Honarpour, M. 929
Hong, J. H. 698
Honselaar, A. C. M. 554
Hook, B. D. 527
Hopkins, M. R. 676
Horne, R. N. 18, 68, 119, 647
Hornof, V. 675
Hosoya, K. 180
Hotier, G. 534
Howard, D. C., 934
Howell, R. L. 509
Hrabe, Z. 783
Hronec, M. 510, 783
Hsu, S. L. 490
Hsu, S. M. 569
Huang, A. 985
Huang, N. C. 23
Hubbard, D. 969
Huff, G. A. 250
Hughes, H. W. D. 357
Hughes Tool Co. 40, 124
Hughes, W. R. 898
Hugues, F. 297
Hulsbergen, C. H. 176
Hums, E. 256
Hung, C. 509
Hunter, C. 1097
Hunter, J. S. 451
Hunter, M. 159
Huseljic, H. 1100
Huseljic, N. 1100
Hutchings, J. M. 277
Hutton, A. C. 866
Hutton, K. 151
Hydril Co. 125

I

Ibarra, S. 310
Ignatiadis, I. 1074
Ikeda, H. 328
Ilavsky, J. 510
Iliuc, I. 825
Imgram, A. G. 520
Ince, R. 731
Inkley, F. A. 92
Inst. Petrol. 191, 192, 193, 541, 542
Inui, T. 239
Ionescu, E. 986
Isautier, B. 692
Islam, M. R. 690, 810
Ito, H. 868
Ito, K. 798

J

Jacoby, R. H. 389
James, C. F. 118
Jamieson, A. W. 146
Jamison, W. E. 584
Jankovic, M. S. 992
Jankowski, D. J. 976
Jayaraman, A. 891
Jenyon, M. K. 624
Jewell, S. M. R. 914
Jewell, W. C. 914
Jewhurst, J. 994
Jha, K. N. 685, 984
Jia-Hua, Z. 8
John, G. O. 813
Johnson, C. A. 366
Johnson, D. R. 509
Johnson, J. B. 933
Johnson, J. E. 689
Johnson, L. 723
Johnson, R. L. 583
Johnson, T. M. 604
Jones, E. H. 264
Jones, M. R. O. 187
Jones, P. 547, 752
Jones, S. C. 81
Jones, W. R. 565
Joosten, M. W. 152
Jordan, I. J. 1008
Jordan, P. A. 449
Jordan, R. O. 42
Joseph, J. A. 421
Joshi, J. B. 754
Jotnimurugesan, K. 251
Juran, B. 799

K

Kabadi, V. N. 538
Kabir, C. S. 420
Kageyama, H. 840
Kalbfus, W. 763
Kane, R. D. 1107
Kapoor, N. 498
Kapp, R. W. 318
Karcher, B. 697
Karnik, J. L. 917
Karpuzcu, F. 257
Karsan, D. I. 368, 369, 370
Karuppana, S. V. 94
Katti, S. S. 791
Kay, K. D. 864
Keating, J. P. 916
Keelan, D. 31, 37, 38
Keifner, J. F. 717
Keiser, J. R. 310
Keller, J. A. 1090
Kelly, W. 374
Kemp, A. J. 935
Kerig, P. D. 412
Kersey, D. G. 354
Kershenbaum, L. S. 773, 774
Kessas, R. 1065
Kexiang, L. 940
Khemchandani, M. V. 844
Khilnani, S. 275
Kidnay, A. J. 1073
Kiefner, J. F. 1025
Kieke, M. D. 1089
Kilpatrick, P. K. 267
Kim, C. J. 221
Kinchen, A. L. 714
King, G. E. 651
Kirk, T. E. 579
Kissel, C. L. 443
Kittreli, J. R. 505
Kittrell, J. R. 515
Klaus, E. E. 569
Klein, M. H. 414
Klein, M. T. 224
Kleinhans, J. W. 154
Kliji, A. J. 981
Klins, M. A. 395
Kller, K. 516
Knauss, M. E. 21
Knecht, H. I. 454, 455
Knights, A. 738
Kobayashi, R. 698
Kobrin, P. R. 907
Kocis, G. R. 757
Koederitz, L. F. 421
Koenig, A. H. 204
Kokolis, G. P. 118
Kolpak, M. M. 158
Kolts, J. H. 1072
Komatsuzaki, S. 580, 861
Konirsch, O. 649

Koplik, J. 53
Kortekaas, T. F. M. 424
Koshy, T. D. 1047
Kothare, S. T. 497
Kramer, S. R. 181
Krasey, R. 682
Kraus, Y. 558
Kremesec, V. J. 64
Krishna, A. S. 236
Krishnamurthy, R. 215
Kristen, U. 856
Krueger, R. F. 361
Krzysztoforski, A. 1069
Kuchhal, Y. K. 501
Kuehne, D. L. 543
Kukes, S. G. 224
Kulhawy, F. H. 164
Kulkarni, K. 795
Kumar, N. 11
Kumar, P. 228
Kumar, T. 968
Kuntamukkula, M. S. 59
Kunzru, D. 228, 873
Kyotani, T. 561

L

Lacour, J. J. 10, 1114, 1115, 1116
Ladov, E. N. 858, 1095
La Grone, C. C. 440
Lai, C. K. 227
Lakshimarayan, M. S. 497
Lan, B. Y. 820
Landrum, W. R. 364
Lane, C. M. 588
Lane, J. A. 809
Lang, W. H. 645
Lange, P. M. 784
Langlinais, J. P. 22
Lansdown, A. R. 854
Lara, P. F. 129
Larsen, I. C. 879
Larsen, L. 15
Lasaki, G. O. 116
Lasseter, T. J. 53
Lath, E. 1057
Laurence, R. L. 792
Lavik, H. 1023
Lawson, J. B. 113
Le, T. H. 807
Leaney, P. W. 773, 774
Lebedeva, L. V. 626
Ledas, A. E. 1119
Lee, F. M. 1051
Lee, I. C. 289
Lee, S. H. 782
Lee, W. 142
Lefebvre, Y. 891
Leftin, H. P. 589
Leighton, F. A. 618
Leipzigen, S. 794
Lemar, R. 849
Leo, J. F. 977
Le Perchec 877
Leprince, P. 909
Lerche, I. 638
Lerner, S. L. 129
Leroy, M. 1075
Leung, H. 259
Levec, J. 487, 488
Leventhal, S. H. 414
Levesque, J. M. 58
Lewis, L. 735
Lewis, M. W. J. 821
Li, T. K. 953
Li, Y. K. 681, 691
Lie, L. X. 206
Lien, C. L. 59
Lieu, V. T. 63
Lim, H. 136
Lin, J. D. 2
Lin, M. L. 198
Line, A. 387
Ling, F. F. 836
Litsey, L. R. 628
Little, J. E. 1017
Logan, M. R. 1102
Logwinuk, A. K. 197
Lohrenz, J. 664
Lorentsen, L. 904
Lostaglio, V. J. 507
Love, T. J. 2
Lucas, G. M. 556
Luce, M. C. 974
Lucki, S. J. 779
Lukey, J. B. 49
Lutz, I. H. 1055
Luyben, W. L. 214
Lyman, T. J. 408
Lynch, J. 271
Lynn, S. 1052
Lyon, R. K. 531
Lyons, W. R. 1036

M

Ma, D. K. 26
Maak, H. 582
McAdams, J. P. 154
McAvoy, T. J. 498
McCabe, C. 453, 1007, 1111
McClelland, G. M. 946
McClennan, J. L. 1016
McClintock, R. 857
McClinton, M. 734
McConaghy, G. A. 401
McConkey, S. E. 162
McCormick, M. 864
McCullough, J. 1035
Macdonald, R. C. 427
McGhee, B. F. 351
McGuire, J. A. 351
Machidori, W. 840
McHugh, J. 741
Maciej, H. 600
McIntosh, I. 711
McInturff, T. L. 943
MacIntyre, K. J. 688
Mackay, D. 614
McKee, R. E. 710
McKee, R. H. 318
Mackett, R. A. 654
McKibbin, P. J. 753
McLaughlin, E. 258
McQueen, G. W. 460
Maddox, R. N. 1078
Magauran, E. D. 1099
Mahns, R. R. 732
Maier, E. E. 511
Maini, B. B. 985, 986
Major, G. 1009
Malcolm, J. D. 876
Mandal, B. 483
Mandal, T. K. 873
Manheim, F. T. 588
Manjnath, A. 929
Mantri, V. B. 1033
Marcinew, R. P. 991
Marlin, T. E. 498
Marquis, F. 632, 633
Marsden, S. S. 391
Marshalla, R. A. 903
Marshek, K. M. 362
Martel, R. 116
Martin, F. G. 167
Martin, H. D. 1103
Martin-Sanchez, J. L. 106
Martinola, F. 784
Masbernat, L. 387
Mashloosh, K. M. 829
Masse, L. 975
Masters, C. D. 9
Matsumoto, K. 281
Matthews, J. C. 932
Matthews, R. R. 157
Matthews, W. R. 932
Maus, L. D. 704
May, J. A. 5
May, V. E. 301
Mayo, F. R. 820
Mazid, M. A. 262
Mazur, A. 309
Mead, D. W. 227
Meadows, R. C. 463
Medlin, W. L. 975
Medwell, J. O. 823
Mehdizadeh, P. 157
Mehla, G. D. 261
Meier, P. E. 869
Meister, P. M. 915
Melpolder, F. W. 190
Mens, J. W. M. 1109
Messmer, J. H. 264
Metman, K. J. 1085
Metzger, R. R. 139
Meyer, D. 735
Meyer, R. F. 122
Meyers, K. O. 138
Meyers, S. 918
Mian, M. A. 665
Michel, J. P. 558
Mikami, K. 868
Mikitenko, P. 121
Miles, J. 109
Miller, C. A. 71
Miller, K. A. 683
Miller, M. A. 409
Miller, P. R. 570
Miller, R. J. 1031
Miller, S. 63
Miller, S. G. 63
Mills, A. J. 1096
Mills, W. F. 833
Mills, W. R. 348
Milstein, R. L. 921
Minet, R. G. 494
Minozaki, Y. 890
Mitchell-Tapping, H. J. 644
Mitsui Engineering & Construction Headqtrs. 223
Miyazaki, T. 1061
Mizumoto, M. 245
Mochida, I. 781, 800, 1061
Mockridge, J. I. 1005
Mohr, H. O. 371
Mohsen, M. F. N. 1
Mollard, M. 594
Monahan, M. J. 1038
Monger, T. G. 416
Monteiro, J. C. 581
Montgomery, C. T. 430
Montgomery, R. S. 827
Monti, D. M. 254
Moore, G. A. 471
Moore, J. B. 678
Moore, R. G. 874
Morales, R. H. 1004
Morales, W. 565
Morbidelli, M. 500
Morgan, D. J. 1078
Moriuchi, T. 840
Morizur-Jersale, M. F. 557
Mork, K. A. 901
Morris, W. E. 1081
Morrow, N. R. 41, 114, 136
Morshedi, A. M. 793
Moseley, L. M. 652
Moses, P. L. 926
Moulu, J. C. 673
Moyer, M. C. 457
Moyers, J. W. 491
Muhleman, T. M. 955
Mui, K. C. 71
Mukherjee, H. 150
Mukkavilli, S. 517
Mulchandani, H. K. 275
Muller, C. 340
Mullins, R. M. 570
Mungan, N. 393, 397, 398
Muraki, H. 817, 1063, 1064
Murata, K. 868
Murphy, R. E. 464
Murray, T. H. 13
Musiat, W. 881
Muth, C. L. 1038
Mutharasan, R. 217
Myers, C. 277

N

NACE Standard 161
Nadkarmi, V. K. 293
Nah-Chi, V. M. 574
Nam, I. S. 505
Napper, J. 108
Narain, S. 200
Narita, E. 247
Nash, J. C. 878
Nat. Assoc. Corros. Engrs 161
Natesan, K. 305

Neal, M. R. *141*
Neale, G. *675*
Neesbye-Hansen, O. *95*
Nelson, C. D. *584*
Nelson, E. B. *47*
Nelson, R. F. *896*
Nerr, W. *638*
Nesbitt, D. M. *903*
Nessim, M. A. *1008*
Newsome, D. S. *589*
Ng, H. J. *1080*
Ng, K. M. *676, 758*
Nguyen, H. *431*
Ni, L. W. *675*
Nilson, R. H. *674*
Nind, T. E. W. *989*
Nolen, J. S. *663*
Nolte, K. G. *448*
Norton, H. W. *809*
Novosad, J. *985*
Nunan, J. G. *516*
Nunes, P. P. *796*
Nutt, C. W. *149*

**O**

Obuasi, P. A. *298*
Odeh, A. S. *360, 436*
Oecki, S. *784*
Oekon, J. R. *276*
Oh, S. H. *315, 316*
Okandan, E. *388*
Okrajni, S. S. *936*
Olanson, M. T. *46*
Oldham, G. F. *332*
Olsen, A. R. *310*
Olsson, P. *610*
Olynyk, J. *987*
Onisko, J. E. *657*
Ormiston, R. M. *974*
O'Rourke, T. D. *163, 164*
Orr, F. M. *445*
Orton, M. D. *728*
Osborne, W. H. *1019*
Osman, M. E. S. *437*
Ostensen, R. W. *679*
Otter, R. W. *412*
Otto, S. B. *1112*

**P**

Page, B. E. *743*
Pain, D. D. *656*
Pal, A. K. *533*
Palacios, J. M. *1106*
Pamell, D. *493*
Pan, Z. *222*
Panatier, M. J. *1117*
Pandey, B. L. *479*
Pandit, A. B. *754*
Pang, T. H. *258*
Paradis, R. *1050*
Paradowski, H. *1075*
Parch, J. R. *478*
Parent, L. V. *549*
Parigot, P. *39*
Park, A. *32, 33, 34, 35*
Parker, R. J. *1046*
Parkins, R. N. *883*
Parkyns, N. D. *246*
Patillo, P. D. *23, 442*
Patton, J. T. *970*
Peakall, D. B. *618*
Pearson, R. M. *50*
Pease, F. T. *963*
Peck, E. E. *588*
Pederson, J. A. *664*
Peggs, J. K. *151*
Pei-Yi, Z. *551*
Pelet, R. *350*
Pennline, H. W. *514*
Penny, G. S. *142*
Penny, R. C. *947*
Percy, J. A. *616*
Perdu, O. *386*
Perkins, T. K. *80*
Perot, G. R. *1068*
Perry, S. G. *330*
Persak, R. A. *196*
Pessetto, L. S. *1038*
Peters, K. E. *809*
Petersen, C. R. *879*
Petit, P. *1075*
Petrakis, L. *791*
Philips, J. C. *62*
Phillips, C. R. *259*
Phillips Petroleum Co *126*
Phillips, W. D. *1093*
Phull, S. K. *479*
Pierce, V. E. *608*
Pierson, V. E. *608*
Pierson, E. L. *606*
Pierson, N. O. *969*
Pierson, R. G. *82*
Pilkington, E. *738*
Pinder, G. F. *84*
Piper, E. M. *408*
Plaschkes, A. *101*
Pleysier, R. *1010*
Polinski, L. M. *255*
Pollack, S. S. *514*
Polzella, A. *213*
Pond, R. J. *713*
Pop, G. *785*
Pope, B. A. *447*
Porcelli, R. V. *799*
Potempa, T. *61*
Pramanik, M. *229*
Preston, L. B. *1033*
Prevedel, B. *358*
Price, E. R. *579*
Price, J. G. W. *48*
Prigent, M. *595*
Prijambodo, R. *86*
Pringle, C. S. *1033*
Prouvost, L. *447*
Prudlich, M. E. *870, 871*
Puisas, M. *594*
Pujitana, Y. *1064*
Purvey, R. *97*
Purvis, R. A. *137*
Purvis, W. *575*
Pusch, G. *74*
Pyron, A. J. *925*

**Q**

Qi, F. *8*
Qigong, C. *568*
Quarles, W. R. *182, 466, 468, 742, 750, 1035*
Quigley, R. M. *329*

**R**

Rabia, H. *658*
Rac, A. *552*
Radke, C. J. *407*
Raghavan, R. *86, 639*
Rainey, R. *151*
Rajagopalan, K. *233*
Ralston, P. A. S. *203*
Ramamohan, T. R. *77*
Ramesh, A. B. *677*
Ramey, H. J. *409*
Ransom, R. C. *641*
Rapp, H. *851*
Rasolofosaon, N. J. P. *336, 337, 627*
Rausch, J. J. *755*
Recht, D. L. *812*
Rege, S. D. *404*
Reichert, W. W. *1088*
Reif, R. P. *1101*
Reinicke, K. M. *433*
Reis, P. J. *140*
Renner, T. A. *429*
Reynolds, A. C. *86, 131, 639*
Reynolds, W. W. *949*
Riazi, M. R. *1105*
Ricchi, B. J. *899*
Rice, S. D. *617*
Richards, B. O. *100*
Richards, H. D. *107*
Riddle, B. L. *579*
Rietveld, R. J. C. *143*
Rigassi, D. A. *737*
Rincon, A. *550*
Ring, T. A. *204*
Ritchie, W. *927*
Robertson, H. G. *218*
Robinson, B. F. *668, 669*
Robinson, D. B. *1080*
Robinson, E. *97*
Robinson, G. C. *152, 178*
Robinson, J. G. *786*
Robl, F. W. *972*
Rocha, J. A. *211, 767*
Rodor, J. *836*
Rojas, G. *693*
Roland, K. *904*
Rolek, R. J. *283*
Rong-Hua, J. *566*
Roodhart, L. P. *441*
Rose, W. *643*
Rosenbaum, I. *415*
Rosenberg, H. S. *888*
Round, G. F. *718*
Rouse, B. *447*
Roussel, J. C. *805*
Rowland, L. O. *183, 469*
Royce, T. N. *130*
Rubin, B. *115*
Ruckenstein, E. *782*
Rudd, D. F. *602*
Rukoneva, F. *1047*
Rushby, B. *539*
Rusinek, I. *804*
Russell, J. *1011*
Russo, E. P. *460*

**S**

Sabathier, J. C. *425*
Sabimi, M. *117*
Saez, A. E. *487, 488*
Sage, J. W. *463*
Sageev, A. *119*
Sagues, A. A. *592*
Sahin, T. *240*
Sahinkaya, M. N. *845*
Saitoh, T. *281*
Sakai, J. I. *160*
Salah, A. B. *729*
Salem, A. E. M. *808, 1094*
Sammon, P. H. *630*
Sandarusi, J. A. *1073*
Sandberg, E. *863*
Sandford, A. J. *1022*
Saner, W. B. *970*
Sardin, M. *52*
Sarma, O. V. L. *503*
Sathaye, J. *918*
Satman, A. *67*
Satterfield, C. N. *234, 250, 1066, 1071*
Sauer, C. W. *364*
Savage, D. W. *772*
Savage, H. E. *833*
Savage, P. E. *224*
Saxena, A. C. *1050*
Sayar, M. *894*
Schaap, D. *168*
Schenck, G. K. *326*
Scherer, D. R. *670*
Schieck, D. E. *656*
Schillmoller, C. M. *492, 1110*
Schipper, H. W. *104*
Schmidt, Z. *166*
Schmiede, J. T. *852*
Schoofs, G. R. *242*
Schoon, N. H. *610*
Schuller, F. P. *841*
Schulte, W. M. *79*
Schutt, W. *1012*
Schutz, R. W. *886*
Schwartz, S. E. *1082*
Schweich, D. *52*
Schweitzer, P. A. *304*
Scriven, L. E. *117, 267*
Sebastian, H. M. *429*
Seddighi, H. R. *323*
Seguret, J. *1113*
Selo, M. *344*
Sepehrnoori, K. *971*
Sethi, V. K. *592*
Settari, A. *56, 697*
Shah, B. R. *253*
Shamah, E. *1102*
Shannon, R. W. E. *184*
Sharma, J. P. *844*
Sharma, M. P. *363*
Shaw, D. A. *948*
Shaw, D. W. *543*
Shaw, W. T. *1018*

Shearn, R. B. 268
Shen, L. C. 14, 27
Sheppard, C. M. 511
Sherman, M. M. 346
Sherrington, I. 842
Shimura, M. 787
Shinjoh, H. 1064
Shinohara, T. 756
Shinouskis, E. J. 317
Shiroto, Y. 787
Shu, W. R. 1056
Shuck, L. Z. 130
Sie, S. T. 506
Siewert, H. R. 204
Sillion, B. 294
Sills, I. D. 1010
Simandiri, S. 852
Simensen, P. A. 379
Simpson, R. E. 426
Singh, C. P. P. 585, 586
Singh, H. 891
Sinor, J. E. 910
Sirgoe, M. A. 952
Siu, A. 681
Sizmur, S. R. 110
Skillman, H. L. 138
Skold, R. 863
Slattery, J. C. 76, 77
Sliney, H. E. 283, 860
Smeenk, R. G. 146
Smith, A. F. 553, 1086, 1087
Smith, C. M. 1066
Smith, E. H. 842
Smith, J. M. 222, 587, 993
Smith, L. A. 460
Smith, M. B. 85, 442
Smith, R. C. 667
Smithers, A. B. 110
Smolik, G. R. 593
Sniegoski, P. J. 564
Sohn, H. Y. 289
Solari, R. B. 486
Soliman, M. A. 202, 894
Soliman, M. 967
Somasundaran, P. 69
Somorjal, G. A. 518
Song, C. C. 551
Soni, Y. 696
Sorell, G. 194
Southwick, J. G. 417
Spanos, T. J. T. 695
Sparrow, S. D. 1098
Speight, J. G. 266
Spencer, C. W. 631
Spencer, D. K. 592
Spencer, J. W. 853
Spiltners, I. J. 284
Springer, D. L. 597
Srinivasan, P. 282
Srivastava, R. D. 533
Stahl, C. D. 396
Stahlfield, D. L. 218
Stair, M. A. 943
Stalon, C. G. 920
Starczewski, J. 209
Stearson, R. E. 430
Stehmann, L. J. 168
Steinmann, K. 174
Stell, D. A. 1117
Stern, D. 496
Stevens, D. M. 853
Stevenson, M. A. 179
Stevenson, R. 770
Steward, H. E. 347
Stewart, W. C. 973
Stewart, W. P. 703
Stocks, K. J. 902
Stone, C. M. 29, 945
Stone, D. 959
Stone, T. 694, 876
Storti, G. 500
Storzer, D. 344
Stotter, A. 577
Streeter, R. T. 556
Strigle, R. F. 1049
Stringer, J. C. 82
Stromswold, D. C. 348
Subramani, S. 484
Subramaniam, B. 248
Subramanian, S. V. 485
Subran, C. 295
Sullivan, J. L. 846
Sun, C. K. J. 270
Supple, W. J. 709
Surdam, R. C. 4
Suyanto 276
Suzuki, T. 290
Swift, R. A. 520
Swulius, T. M. 637
Sylvester, N. D. 165
Sylvestre, L. 338

T

Taha, R. 971
Tai, W. P. 1092
Takada, M. 180
Takeuchi, C. 787
Tam, P. S. 515
Tamura, K. 837
Tanaka, K. 798
Tannibelle, A. 244
Tasic, A. 524
Taviarides, L. L. 517
Tavlarioles, L. L. 201
Taylor, G. E. 333
Taylor, R. 215, 555
Teja, A. S. 537
Tempest, M. A. 1096
Terrill, D. L. 499
Terry, R. E. 895
Teuner, S. 243
Theodore, A. N. 563
Thiebot, B. 265
Thomas, A. S. 1096
Thomas, D. E. 881
Thomas, F. B. 874
Thomas, L. K. 82
Thomas, W. J. 232
Thompson, R. 815
Thornton, R. W. 684
Thorogood, J. L. 372, 634
931
Tibbatts, R. M. 456
Tofanio, G. D. 171, 172
Tolfo, F. 212
Toman, M. A. 919
Tomfohrde, J. H. 759
Tompkins, L. 723
Toney, J. B. 36
Topsoe, H. 526
Torbin, R. M. 734
Totonji, A. 123
Toulhoat, H. 1065
Towler, B. F. 413
Tragitt, G. N. 811
Trautman, C. H. 164
Trautmann, C. H. 163
Trekell, R. E. 606
Troxell, E. J. 745
Tsai, F. W. 494
Tsai, K. J. 237
Tubb, M. 965, 966
Tucholke, B. E. 7
Tumuluru, M. D. 302
Tunaal, T. 157
Turi, E. 758
Twu, C. H. 536
Twyford, L. R. 139
Tyler, T. N. 139

U

Udeh, A. S. 75
Uhlin, R. C. 102
Underdown, D. R. 431, 432
Unger, K. W. 934
Urquhart, R. D. 725

V

Valais, M. 548
Van Camp, C. E. 226
Vandenbroucke, M. 875
van der Burgt, M. J. 506
Van der Meer, W. T. 103
van Dongen, J. C. M. 935
van Golf-Racht, T. D.
450, 700
Van Horne, E. K. 99
van Klinken, J. 506
Van Meter, O. E. 972
Van Rensburg, W. C. J.
913
Varma, A. 248
Vassiliadou, E. 401
Vaughn, G. A. 300
Veiban, F. 340
Vela, S. 17
Veletsos, A. S. 751
Venkatesan, V. N. 1056
Venkatesh, E. 529
Verkoczy, B. 984
Verma, K. 990
Veronessi, V. 848
Verson, R. L. 489
Vervalin, C. H. 466
Veryklos, X. 217
Vijayan, C. P. 319
Vinegar, H. J. 636, 642
Vittoratos, E. S. 988
Vossoughi, S. 133, 444
Vriezen, P. B. 146

W

Waddell, M. 826
Wade, W. W. 383
Waite, C. 744
Wakao, N. 587
Walbfus, W. 763
Walker, A. C. 709
Wall, T. A. 717, 1025
Walter, F. B. 689
Walton, D. 169
Wamer, P. A. 575
Wang, G. X. 788
Wang, Y. Y. 555
Ward, C. E. 438
Ward, D. P. 318
Ward, G. D. 438
Ward, J. J. 824
Ward, W. E. 575, 576
Wardley-Smith, J. 331
Warne, T. M. 834
Warner, P. A. 576
Warpinski, N. R. 78
Warren, T. M. 938, 939
Wasan, D. T. 402, 403
Watkins, M. 300
Watkins, M. J. 887
Watson, A. T. 412
Watson, F. A. 282
Watts, J. 467, 722, 726, 816
Weber, A. G. 426
Weeks, S. G. 884
Weill, J. 294
Weinstein, H. G. 663
Weiss, W. W. 680
Weiszmann, J. A. 1062
Wells, P. G. 616
Wenger, R. S. 429
Wensel, R. 850
White, J. E. 436
White, P. D. 435
Wiborg, R. 994
Wilhelm, S. M. 1107
Wilke, A. 1015
Willhite, G. P. 444
Williams, L. M. 941
Williams, L. S. 107
Williams, M. R. 365
Williamson, A. S. 995
Willman, B. 537
Wilson, M. B. 100
Winston, H. 17
Winston, W. P. 605
Winters, W. J. 938, 939
Wittmann, C. V. 517
Woerner, W. C. 838
Wojciechowski, B. W. 235
Wolff, M. 913
Wolsky, A. M. 976
Wong, L. F. 846
Wong, W. 153
Woodrooff, R. A. 440
Woods, T. J. 12
Wright, T. R. 91
Wu, R. S. 983, 988

X

Xie-Pei, W. 8
Xu, J. 859

Y

Yamashiro, H. *263*
Yan, T. Y. *504, 530*
Yang, C. Z. *771*
Yang, R. T. *220*
Yang, S. L. *26*
Yanik, S. J. *508*
Yaollang, H. *801*
Yarlagadda, P. S. *801*
Yeldell, J. F. *1037*
Yen, B. C. *171, 172*
Yesavage, V. S. *1073*
Yong-Xin, Q. *567*
Yonqxin, Z. *568*
York, D. W. *947*
Yorulmaz, Y. *257*
Yoshino, Y. *890*
Young, C.-W. *516*
Young, G. W. *233*
Ypma, J. G. J. *65*
Yucelen, F. *587*
Yue, P. L. *231, 232*
Yumura, M. *219*
Yumura, N. *219*

Z

Zais, E. J. *699*
Zaretsky, E. V. *841*
Zawisza, L. *629*
Zhou, P. *775*
Ziegler, P. F. *755*
Zigrang, D. J. *165*
Zou, J. *777*
Zou, R. *532, 777*

# Subject Index to Volume 14


**Additives**
chlorinated-polyisobutene in lubricants 294
cyclic 1,3-iminoethers 877
for lubricants 550, 563, 577, 836, 837, 877, 878
identification, analysis 295
synthetic 878
**Absorption and Adsorption**
activated carbon 216
adsorption separation processes comparison 500
arsine removal for catalyst protection 218
CaO adsorbent 219
diethanolamine degradation 221
$Fe_2O_3$ adsorbent 219
gaseous hydrocarbons 216
$H_2S$ adsorbents 219
$H_2S$ selective removal 772
*in-situ* removal of ethanol from fermentation broths 217
pressure swing adsorption 220, 223
precipitation-dissolution of a petroleum sulphonate 771
simulation of absorption columns 215
ternary gas mixture separation 220
ZnO adsorbent 219
**Alkylation**
alkyl benzenes 1067
benzene with ethylene 790
HF alkylation 253
mass spectrometry 1074
*n*-alkanes 1068
*para*xylene selectivity 252
pyrrole derivatives in oil and petroleum products 1074
transalkylation of ethylbenzene 790
**Analysis**
Arabian crude 269
asphaltene analysis 272
crosslinked gel analysis 410
engine oil, infra red analysis 544
gas chromatography 539
heavy crude 287
laser Doppler anemonetry 73
liquid chromatography 565
liquid refinery waste 763
lubricants, mass spectrometry 560
mineral-base motor oil additives 295
nuclear magnetic resonance 805, 819
petrography of lower-Palaezoic kerogen 273
polyacrylamide concentration in presence of sulphonates 543
resin analysis 272
Rock-Eval type pyrolysis 350, 632, 633
spilled oil samples 330
standard methods 542
standard slack wax samples 540
thermal extraction chromatography 48
thermal fingerprinting 984
**Arctic Environment**
Alaska 9, 138, 175, 383, 385, 922
ADAPS system 703
arctic marine birds, risk assessment 618
Arctic Ocean 393
artificial island construction 456
Beaufort Sea 1007
Bering Sea 383
CESAR project 393
drilling and development 382
drilling/production unit 703
effects of oil on arctic invertebrates 616
effects of oil on fish 617
effects of petroleum 612–620
effect of petroleum activities on arctic man 620
effect on petroleum on marine mammals 619
exploration and production 383, 1007
Hibernia development project 1006
iceberg-resistant gravity structures 1006
Kuparuk River field, Alaska 657
marine ecosystems 613
petroleum biodegradation in arctic ecosystems 615
petroleum resource assessment 9
pipelines 1008, 1020
Prudhoe Bay 138, 150, 995, 1007
semi-submersible floating production vessel 449
simulation programme applicable to Cook Inlet basin 922
single steel drilling caisson 374
spilled oil, physical and chemical fate of 614
submarine arctic pipelines 1008
trans-Alaska pipeline 175
**Asphalt**
asphaltic water, fuel oil 280
asphaltene thermolysis 224
Athabasca oil sands 259, 876
chemical modelling 875
elemental analysis 272
modified asphalts 293
molecular weight of asphaltenes 266
solvent extraction of bitumen from tar sands 259
thermochemical behaviour 293
tracer diffusion in aromatic hydrocarbons 270
**Australia**
natural gas pipeline 1010
natural gas reserve 902
North Rankin offshore pipeline 471
oil shale deposits 866
Otway basin 344
**Automobile Engines**
catalytic converters 315–317
high-compression-ratio combustion chambers 314
**Bearings**
aerostatic bearings, single orifice 826
air-lubricated thrust bearings 826
analysis of high speed bearings 823
contact stress, journal and bearing 362
dynamic characteristics 551
ends of fast-acting bearings 827
fatigue life 550
fluid film bearings 551
load capacity evaluation 1085
lubricant creep on ball-race 1103
misaligned stern tube bearings 281
oil film bearing coefficients 845
oil film dynamics 281
Reynolds equation solution 822
rolling-element 550, 841
self-lubricating 860, 1084
self-lubricating polymer 1084
sintered bronze bearings 567
tapered roller bearing torque 857
**Canada**
artificial island construction 456
Athabasca oil sands 694
economic limit for non-EOR projects 415
energy interdependence with US 898
energy policy 600
Lloydminster reservoirs 683, 686, 693
Norman Wells area 366, 456, 957, 993
Norman Wells pipeline 183
offshore production systems 151
offshore reservoirs 711
petroleum industry prospects 692
pipeline communications, remote areas 743
pipeline construction forecast 469, 716
Saskatchewan heavy oil reservoirs 683–686, 725, 1046
Viking formation, Alberta 622
Viking Kinsella B unit 135
Western Canada, developments 50
Wolf Lake project 687
**Carbon Dioxide**
$CO_2$-ethane azeotrope separation 698
La Barge gas processing technology 689
corrosion 303, 591

**Carbon Dioxide** (*contd.*)
flooding *59, 117, 118, 126, 393–395, 416, 427, 429, 445, 446, 685, 688, 689, 693, 697, 698, 970, 972–974, 976*
pipeline construction *468, 716, 722, 723*
pumps for $CO_2$ pipelines *1021*
properties and uses *812*
recovery from lean $H_2S$ streams *1078*
**Casing**
collapse with ovality *23*
highly deviated wellbores *42*
**Catalysts**
aluminium chloride *790*
alumino-silicate *786*
automotive catalysts *315–317, 595, 609, 610, 816*
bifunctional *784*
bimetallic *241, 506*
caesium surface doping of Cu/ZnO catalysts *516*
catalyst aging data, long term *508*
catalyst manufacture *507*
Claus catalyst design *242*
cobalt-based *510, 514*
cobalt-thoria/ZSM5 *514*
coke tolerance of reforming catalysts *505*
copper on silica *254*
copper/zinc *516*
deactivation *242, 515*
deactivation due to poisoning *515*
dehydrogenation kinetics *251, 511, 530, 533*
electron microscopy studies *271*
ethyl benzene dehydrogenation *511*
faujasite-based *255*
heavy oil cracking catalyst evaluation *233*
hydrocarbon synthesis *239*
hydrometallation catalysts *509, 512*
hydrotreating *513, 519*
lube oil base stock treatment *530*
metal oxides *239, 245, 783*
mordenite-based *255*
multistage reaction *243*
Ni-Mo/$Al_2O_3$ catalyst *525*
noble metals *1063*
palladium *241, 1064*
palladium-lanthanum *817*
platinum-alumina *255*
platinum-rhenium reforming catalyst deactivation kinetics *533*
poisoned *515, 525*
pore and pellet size effect *513, 518, 787*
pore structure *787*
powdered *237*
shape selective *249*
SMDS, Shell middle distillate synthesis *506*
structure sensitivity *513, 518, 787*
sulphur condensation *242*
syngas conversion *239, 789*
three-way catalyst kinetics *248*
tin oxide *245*
zeolites *231, 233, 235, 236, 239, 247, 249, 252, 521, 780, 782, 788*
ZSM-5 (Mobil) catalyst *217, 235, 247, 249, 530, 532, 785, 786, 789, 801*
**Catalytic Cracking**
dehydrochlorination *1061*
dichlorobutene into chloroprene *1061*
ethanol dehydration *231, 232*
ethylbenzene conversion to styrene *778*
feedstock characterizing parameters *1059*
fluid catalytic cracking *503, 1059, 1060*
fluid catalytic cracking at Bahrat refinery *503*
FCC unit fouling, reduction *1060*
Fischer Tropsch product *235*
fluidized beds *231, 232*
gas oils *779*
heptane cracking *780*
middle distillate processing *236*
*pentane*-soluble oil and coal conversion *237*
**Catalytic Reforming**
aromatization of light hydrocarbons *504*
coke tolerance of bimetallic catalysts *505*
naphtha reformer feeds *238, 504*
naphtha steam reforming *223*
octane upgrading *1062*
petroleum coke on iron ores *781*
removal of lead contaminants *238*
**Cathodic Protection**
deep anode beds *1012*
effectiveness under unbonded coatings *728*
pipelines *728, 738*
power source for remote locations *312, 590*
solar powered *590, 882*
storage field well casing *307*
stress corrosion cracking, pipelines *160, 306, 880, 883*
twenty-year review *308*
well casings *307, 308*
**Cements and Cementing**
chemistry of thermal cements *47*
foam cementing *45, 46*
fragile-formation wells *45*
gas migration *44*
liner cementing, offshore *962*
matrix control cementing slurry *40*
primary cementing *667*
process design chart *364*
**China**
crude and product trade *604*
jet-bit drilling *940*
Lanzhou refinery *206*
offshore exploration *5, 341*
South China Sea *5, 341, 958*
Subei-South yellow Sea basin *8*
**Coal**
catalytic upgrading *240*
Illinois No. 6 coal *290*
**Coal Conversion**
supercritical fluids application *121*
**Coal Gasification**
corrosion in coal gasification atmospheres *305, 593*
corrosion of tubulars *593*
syngas *239, 246*
**Coal Hydrogenation**
analysis of coal liquids *1105*
catalytic hydroprocessing *522*
rheology of coal-water mixtures *1104*
slurry rheology *1104*
thermal instability of coal-derived naphtha *523*
**Coal Liquefaction**
analysis of coal liquids *287*
corrosion-resistant materials *310*
hydroliquefaction *245, 290, 867, 868*
pressure vessel, piping and welding requirements *520*
SRC-11 process *585, 586*
SCC in pilot plants *199*
systemic toxicity of materials produced *318*
**Coal Oil**
solvent refined coal *240*
**Computer Applications**
condensate computer model *198*
control of desulphurizer fractionator *482*
'Drilling Advisor', expert system *950*
drilling-hydraulics calculations *932*
engineering applications *334*
fractionator performance *208*
gas processing plant *809*
hand-held computers, pipeline applications *1014*
oilfield surveillance *678*
Phillips reservoir simulation models *82*
pipeline operation optimization *1033*
P-V diagram simulation *278*
petroleum economics software, purchasers guide *914*
reservoir simulation *57, 58, 82*
SCADA, pipeline application *464, 470, 739, 740, 744, 745, 1011, 1015, 1016, 1018, 1019*
well test analysis *647*
**Corrosion**
austenitic stainless steel embrittlement *301*
$CO_2$ corrosion assessment *303, 591*
carbon steel oil-country tubulars *942*
chromium-clad tubing *885*
condensation heat exchangers of corrosive fumes *299*
gas producing conduits *884*
flow line failure in high production well *309*
flue gas desulphurization systems *888*
high pressure steel pipelines *880*
$H_2S$ corrosion *1107*
in coal liquefaction plant *310*
in Eastern oil shale retort *592*
lubricants, corrosion-inhibiting *575, 576*

magnetic treatment of water 889
materials for sour service 1107
naphthenic acid corrosion 891
outlet ducts in wet FGD systems 888
phosphate-based inhibitors 313
pipelines 1108
piping, corrosion-resistant 304
refineries 891
scrubber environment 886
seawater sand slurries 1109
sour gas service, materials failure 306
stress corrosion cracking 1110
sulphide stress cracking 300, 302, 890
sulphide stress cracking, resistant steels 311
test procedure 883
titanium alloys 886
TRIBOCOR 532N for corrosive environments 755
tubulars in coal gasification 593
unbonded coatings 728
waste water treatment plant 200
wellhead equipment 890

**Crude Oil**
analysis 287
heavy crude oil recovery 389–400
phase behaviour 926
world oil models 903, 904

**Desulphurization**
dibenzothiophen by *in situ* $H_2$ generation 527
flue gas 881
fluidized bed desulphurization 803
hydrodesulphurization catalysts 526
hydrodesulphurization of petroleum coke 781
$H_2S$ fixation 534
liquid fuels 1070

**Diesel Fuel**
cetane number 818, 819
gum and deposit formation 820
organic sulphur compounds, effect on cetane numbers 818
vegetable oil transesterification 279, 546

**Distillation**
acid numbers, Saskatchewan heavy oils 1046
Bharat refinery crude distillation unit 497
$C_4$ recovery costs 1049
distillation tower dynamics 498
gauze-type structured packings 211
heat-integrated column 214
heptane from toluene 1051
internal reflux calculation 212
mass transfer 211
multicomponent 210
multi-effect extraction 1052
organic sulphones as extractive solvents 1051
performance indices 1050
process control 1048
reflux control 212
reflux and surface tension effects 1047
separation of closely boiling mixtures 499
simulation of packed distillation column 215
ternary separations 214
tray estimates for low reflux 210
vacuum gas oil distillate 213

**Drilling**
air drilling 363
annular flow data 22
bit selection 658, 946
casing and tubing design 943
casing collapse 23
casing running 42, 364
casing-supported drilling templates 941
cementing slurry 40, 44–47
clean perforations 651
computer-based expert system 950
cone bit kinematics 26
coring 31–38, 354
deep sour-gas wells 943
deviated wells 42, 366, 957
diamond-bit hydraulic lift 938, 939
dielectric-constant logging 27
directional 353
drill bit review 31
drilling-hydraulics calculations 932
drillstem test data 654
engineering simulator, economic analysis of drilling plans 949
efficiency improvement 655
foam cement 40, 44–47
formation damage 361
gas migration into wellbore 44
historical drilling statistics, risk appraisal analysis 650
hydraulic-lift 938, 939
Hydroplot 39
jet-bit drilling in China 940
lateral drilling 953
leak-off test recorder 39
litho-density tool calibration 25
loading effects 945
logging device 25
logging techniques for resid. oil after waterflood 41
MWD systems 353, 366, 652, 653, 935
PDC tools 29, 656, 657, 935, 945, 946
rapid wellbore evaluation 48
relative permeability 360
residual oil saturation after waterflood 41
rotary rock bit journal bearing stress 362
salt dome, horizontal drilling 358
salt formations 933, 934
seal design 43
seals for tubular connections 43
shale, three-cone bit lab. tests 28
specific energy as criterion for bit selection 658
stress measurements, *in situ* 951
techniques for underground natural gas storage facilities 649
thermal response of PDC bits 29
threaded-connectors 365
torsion and tension limit refining 648
tubing-conveyed perforating 651
turbodrills 935
two-phase pipe flow 22
vibration 24
well productivity, review 361
Wilcox formation, case history 947
wildcatting in US 355
World Oil's annual review 956
World Oil's drill bit review 30
World Oil's 1986 drill bit classifier 954
worldwide review and forecast 359

**Drilling Fluids**
bentonite/polymers 936
bentonite 936, 937
drilling, completion and workover fluids guide 955
invert-emulsion oil 946
isothiazolone-based biocides 948
mud-gas mixtures 22
muds 22
non-toxic oil-mud system 944
preservatives 948
review, 1986 guide 955
rheology 936, 944
surfactants 978–980
workover fluids 978–980

**Economics**
Canadian energy policy 600
Canadian petrochemicals investment opportunities 601
China's crude and product trade 604
corporate takeovers, industry restructuring 915
crude oil futures 1120
data for potential investors 899
developing countries, energy-economic interactions 905
discounted cash flow rate of return 598, 911–913
economic modelling 1117
economics of disposal methods, North Sea oil 715
energy interdependence, Canada and US 898
exploration and development costs, US 599
financial aspects, advantageous techniques 917
forecasting annual production 1113
fuel oil upgrading, processing facilities review 897
future developments, European oil and gas industry 1114
future outlook for oil 1115, 1116
gas shortages 1112
gasoline demand survey 906
general equilibrium framework for optimal planning 323
hedging strategies 1120
hydrocarbon processing industry, investment review 761
investment analysis, US oil and gas producers 326
Korean Republic, integrated national energy planning 900

**Economics** (*contd.*)
large integrated US companies, their role *1118*
lubricant market trends *838*
major petroleum operating costs, reduction *909*
manufacturing costs, petroleum product costing *1119*
Mexican petrochemicals development policy *602*
microcomputers for petroleum industry *914*
natural gas competition, distributor's viewpoint *895*
natural gas pipeline industry, market power *908*
new price regime, oil companies reaction *1111*
OCS lease bidding data *96*
oil reserves estimation, forecasting tool *655*
oil reserves, values and costs evaluation *664*
petrochemicals *601, 602, 894*
petrochemical industry in Arabian Gulf *894*
petroleum demand, long-term *910*
petroleum industry price analysis *324*
pricing during oil supply distributions *901*
price reductions *1111, 1112*
reduction in rig surplus *963*
Rotterdam spot market *322*
Saudi Arabian economy, position of oil *325*
US natural gas perspective *895*
venture analysis *968*
world crude prices and activity *603*
world oil market model, through to year 2000 *904*
world oil price model, including production levels *903*
**Engine Fuels**
analysis *544*
boron compounds for microbial control *815*
butanol-acetone systems *279*
compressed natural gas *816, 1083*
containing methanol *1082*
French research *279*
gasoline/alcohol mixtures *190, 545*
gasoline demand survey *907*
gum and deposit formation *820*
interaction blending *1081*
lead-free *547, 548, 608*
methanol *279*
microbial control *815*
mineral-base motor oil additives *295*
octane number increase *1081*
synthetic *279*
unleaded gasoline *547, 548, 608*
vegetable oil derivatives *279, 546*
**Engines**
catalytic converters *315–317, 595, 817*
diesel, $NO_x$ emission *328*
diesel, wear of cast iron *837*
electronic fuel control systems *573*
environmental properties *573*
filtration improvement *836*
friction reduction *836*
gas injection diesel *892*
high-compression-ratio combustion chambers *314*
low-grade fuel engines *893*
lubricating oils *563, 577, 578, 830–832*
Mitsui gas injection concept in diesel engine *892*
oil additives, effect on engine friction *577*
oil-film thickness measurement on I.C. engines *842*
performance correlation with motor oil blends *830*
polymer behaviour, effect of gasolines *594*
tuned post fuel injection system *573*
**Ethanol**
dehydration *231, 232*
internal diffusion coefficient of ethane *216*
methanol conversion to ethanol *799*
separation from water *261*
US flag ships, low-grade fuel engines *893*
**Ethylene**
alkylation of benzene *790*
*in situ* removal from fermentation broths *217*
internal diffusion coefficient *216*
Mossmorran plant *770*
phase separation, ethylene-polyethylene systems *524*
**Exploration**
Delaware basin, New Mexico *11*
discovery rate *12*
field size in US *122*
Michigan basin update *921*
wildcatting in US *355*
world energy development 1984 *13*
world oil reserves *10, 13*
**Fischer-Tropsch Synthesis**
carbon deactivation *517*
comparison in a fixed-bed and a slurry reactor *234*
effect of water *1071*
forced concentration cycling *528*
kinetics *797*
liquid accumulation in catalyst pores *250*
rate and selectivity enhancement *528*
ruthenium catalyst *517, 528*
**France**
Chateaurenard field *52*
**Gas**
Abu Gharadig onshore field *186*
Arun field, Sumatra *128*
Australia's natural gas reserve *902*
$CO_2$ corrosion in gas wells *303*
compressed natural gas, engine fuel *816*
computer applications in gas processing *809*
discoveries/reserves, US *670*
Danish natural gas lines *462*
economic modelling *1117*
engine fuel, for gasoline and diesel engines *816*
flare radiation intensity *321*
flow in porous media *406*
high-pressure gas reinjection facilities *128*
hydrate formation in gas or gas condensates *1080*
India, natural gas development *275*
Japan, safety devices for domestic supply *320*
Morecambe gas field *357, 702*
Mosmorran gas fractionation plant *770*
natural gas reservoir identification *1076*
natural gas viscosity correlations *810*
North Sea Basin supply *148*
offshore loading facility for LPG *274*
permeability of tight gas sands *679*
pipeline compression shutdown leakage, gas losses *719*
pipelines *159, 162, 167, 169, 170, 173, 174, 176–178, 180, 184–186, 461–463, 465–468, 473, 590, 715, 716, 719, 721–724, 726, 729–732, 734, 741, 750, 813, 880, 882, 920, 1010, 1023–1031*
Piper platform *153*
processing guide *1077*
production and distribution *428*
production tubulars, corrosion inhibition *884*
reciprocating compressor performance *278*
regulatory practices *920*
research projects *814*
reservoir and production planning *426*
Rough field *357, 702*
SCOR, for gas regulators *478*
SIGMA, sonic integrated gas measurement assembly *477*
Sleipner/Troll gas *982*
Southern Basin Thames complex *701*
SULFTEN system *811*
supply levels *1112*
syngas *1079*
tight gas reservoirs *631*
town gas from petroleum distillates *246*
underground natural gas storage facilities *649*
US natural gas supply *549*
US well production survey *384*
V-fields, offshore development *999*
volumetric dry gas reservoir simulation *434*
well completions *418*
wildcatting, exploration US *355*
**Geology**
Atlantic, northwest *7*

Biot's theory 20, 336
Buckley-Leverett problem 1
California, coastal 4
California, Kern County 21
*Carboniferous* 629
carbon isotope data 626
*Cenozoic* 340, 623
detrital apatites 344
diapiric traps 8
fault and pinchout modelling 630
finite-conductivity fractures 639
geochemical evolution 350
intrinsic attenuation 19, 20
Iraq 625
*Jurassic* 626
*Lower Cretaceous* Viking 622
Lublin synclinorium, Poland 629
magmatic diapirism 8
Malta escarpment 340
Mesopotamian Basin 625
*Mesozoic* 340, 623, 626
Michigan basin, update 921
Middle East 623, 625, 628
*Miocene* 635
*Neogene* carbonates 635
Northwest European earthquakes 6
oceanic black shale 865
*Paleozoic* 623, 626
*Pliocene* 335
*Quaternary* 335, 340
Rocky Mountains 631, 656
Saint Croix, Virgin Islands 635
salt rock interval 624
seismic resolution 339
Shuaiba chalk reservoir 628
South China Sea 5, 341
Strait of Messina-Tunisia 335
Subei-South Yellow Sea basin 8
*Tertiary* 340
thermal evolution 4
thermal properties analysis 2, 4
tight gas reservoirs 631
trapping in porous medium 338
*Triassic* 626
Upper Miocene 335, 336
vertical migration 3
West Siberia, oil and gas regions 626
Yibal field, Oman 628

**Geophysical Exploration**
acoustic waves in saturated porous media 336, 337, 627
Archie's lithology 646
Biot mechanism 20, 336
borehole modelling tool 642
brine-saturated rocks 640
cement bond log recordings 351
core studies 354, 636, 638, 640, 643, 923, 924
depositional environment 644
dielectric properties 14, 640
dip analysis 345
fission-track analyses 344
fluid flow 17, 636, 643, 928
fluid flow characterization 928, 929
fractured system data 16, 638, 639
induced polarization logging 642
LANDSAT imagery 342
log analysis 21, 345, 348, 351, 352, 637, 641, 642, 645
low permeability zones 17
membrane potential tests 347
multiphase fluid flow 636
neutron capture logs 348, 637
NMR imagery 636
Ouachita Mountains, Arkansas 925
pinchout boundary recognition 18
petrophysical studies 635, 636
phase behaviour 926
pore pressures calculating 641
porosity calibration of neutron logs 637
porosity from dielectric constants 346
pressure distributions 15, 17
pressure transient analysis 18
projective well analysis 930
relative permeability, effects of temperature 929
relative permeability measurement 929
remote sensing 342
reservoir properties, computer-based technique 647
Rock-Eval analysis 632, 633
rock permeability relation 646
SACROC unit 637
seismic resolution 339
seismic techniques 19, 20, 343, 349, 927
sidewall core permeability 643
sigma matrix measurement 348
static self-potential resistivity method 644
stratigraphical studies 635
subsurface fracture density 638
survey implementation 931
Terryville field, Louisiana 352
3D seismic techniques 927
well-surveying data 634
wettability 923, 924
x-ray computerized tomography 636

**Hydrocracking**
effect of catalyst pore and pellet size 513
hydrodenitrogenation of distillates 1065
hydrodenitrogenation of quinoline 1066
Rundle shale oil 519
solvent refined coal 240
trickle-bed reactor 244, 757
vegetable oils 796, 801

**Hydrogenation**
automated plant 508
catalysts 241, 254, 508, 521
methyl formate 254
MOGD, Mobil Oil's olefin to gasoline and distillate process 521
solvent refined coal 522, 523
SRC 11 heavy distillate 522, 791
SRC 11 naphtha 523
vapour phase kinetics 254

**India**
Bharat refinery 479, 480, 483–5, 497, 503, 529
Bombay High crude, processing 479, 501
natural gas development 275

**Indonesia**
LNG plant 276, 277
offshore exploration 5

**Industrial Hygiene**
carginogenic hazards 834, 858, 1095
ethyleneglycol monomethyl ether, teratogenic potential 596
Harmaville process solvent, toxicity 597
high-boiling coal liquid, toxicity 597
systemic toxicity, coal liquefaction-derived materials 318
toxicity of lubricating oils 834, 858

**Isomerization**
ethyl benzene 255
influence of zeolites 249
xylenes 255

**LNG**
bubble point measurements 794
production plant, North Aceh, Sumatra 276
reliquefaction, recovery of boil-off gas vapours 1075
South East Asia, plant design 277
thermodynamic data measurements 794

**LPG**
offshore loading facility 274

**Legislation**
International Energy Agency 919
natural gas pipelines, regulatory practices 920
offshore discharge criteria 952
offshore information 333
petroleum law guide 605
Phillipines, effect of oil-import reduction policies 918
US natural gas supply, Federal Energy Regulatory Commission 549

**Lubricants**
abradable seal erosion 556
abrasive contaminants 844
accelerated screening test, low cost 575
additives 550, 563, 577, 836, 837, 846, 1106
alternative base oils 581
antioxidant depletion in aircraft gas turbine engines 564
anti-weld properties 580, 861
bonded solid lubricants 859
boundary lubrication 557, 559
carcinogenic hazards 858, 1095
chemiluminescence 284
chlorinated-polyisobutene additive 294
compressor fluid performance 1096
contamination in compressed air systems 572
corrosion-inhibition 575, 576
creep on ball-race 1103
cylinder pressure transients 562
detection of particulate matter 853

**Lubricants** (*contd.*)
diesel engine lubricants *1102*
diester-based *1098*
dual-purpose fluids *849*
effects of temperature *283*
elastohydrodynamic contacts *840*
engine oil qualities, influence on friction losses *577*
engine oils *563, 577, 578, 830–832*
engine performance correlation with motor oil blends *830*
ester oil, chemical degradation *564*
evaporation, effect of *854*
experimental cutting fluids *570*
film thickness measurement *842*
fine-resistant hydraulic fluids *555, 852, 1093*
fleet testing, fuel economy *832*
flow properties/traction behaviour correlation *561*
gear oil *848, 857*
grease plant, air pollution control *621*
grease testing techniques *582*
high speed rolling bearings *841*
hydrotreating used oils *1092*
industrial lubricant, economic trends *838*
iron and copper in oxidation degradation *569*
lithium grease *864*
lithium soap grease *566, 864*
load-carrying capacity test *558*
load wear index versus weld point correlation *1097*
lubrication planning *833*
mass spectrometry *560*
membrane filters for grease *855*
metalworking fluids *571, 835, 849, 879*
Mexican lubricating grease plant *574*
microbial-resistant *879*
microporous polymers *584*
microwave pasteurization *835*
mineral-based gear lubricants *583*
$MoS_2$ dispersion *283, 1091*
$MoS_2$ dispersion in mineral oils *283*
new grease leakage test *1090*
oil separation from greases *843*
organoclays, rheology *1088, 1089, 1099*
overbased detergent additives *837*
PEPE oil degradation *559*
petroleum-based, contamination with mechanical lubricants *579*
polyimides *860*
polymetric additives *563*
PTFE powder *847*
railroad diesel engine lubricants *1102*
rail/wheel lubrication studies *1101*
SAE SW-30 oils, characteristics *831*
Sinclair Road Oxidation Test, improvement *806*
sodium-based greases *581*
standards, Yugoslavia *1100*
sulphurizing *848*
synthetic *583*
thermal stability *282, 283*
thermo-oxidation stability *1094*
toxicity *834, 858, 1095*
traction behaviour *561*
turbine oil *848*
ultrafilterability *855*
zinc dialkyldithiophosphates *557*
water-based aluminium cold rolling *863*
**Meters**
design and construction *264*
electronic integrators *732*
flow measurement *94, 193, 535*
flowmeter performance *145*
gantry meter proving *192*
high-volume gas meters *264*
instrument accuracy *753*
microprocessors, handheld for meter reading *1039*
Lo Flo meter *1040*
oil loss control *108, 109, 752*
SIGMA, gas measurement *477*
**Methanol**
in automotive fuel *545*
conversion to BTX *785*
conversion to ethanol *799*
conversion to toluene *786*
hydrate formation *1080*
in engine fuels *1082*
internal diffusion coefficient of methane *216*
methanol-gasoline blends *190, 545*
engine fuels, synthetic *279*
**MTBE**
bifunctional catalysts *784*
Octol process *765*
**North Sea**
Claymore field *156*
Danish concessions *381*
Dutch continental shelf activity *380*
Dutch sector gasline *176*
earthquakes *6*
Eider field *377, 997*
Ekofisk *453, 994*
gas gathering system *982*
gas supply *148*
Hutton field *961*
information sources *333*
pipeline design and operation *168, 173, 185*
Piper field *156*
review, UK *357*
Rough *357, 702*
Snorre *379*
Southern basin Thomas complex *701*
Statpipe gasline *173*
Troll *379*
UK continental shelf activity *378*
V-fields *999*
well surveying, review *372*
well testing *50*
**Norway**
Gulfaks field *1000*
oil and gas activity 1985 *376*
oil and gas outlook for 1986 *376*
Oseberg field *450, 1000*
Statpipe *173, 1023*
**Offshore Drilling**
Arctic developments *382, 383*
arctic drilling/production unit *703*
arctic drilling unit *374, 382, 703*
Conoco, TLP development wells *960, 961*
directional *353, 661*
directory of marine drilling rigs *964*
drilling rig activity, 1976–1986 *373*
drill-stem testing technique *49*
Dutch continental shelf activity *380*
Gulf of Mexico projects *965*
information sources *333*
liner cementing, deep geopressured wells *962*
marine riser system *959*
MWD systens *353, 367, 659*
multiple-tendon anchoring *703*
Ocean Industry forecast and review 1985 *371*
regulatory changes *952*
rig surplus reduction *963*
spline-oriented templates *941*
survey *964, 966*
technology review *958*
templates *941*
well control flow geometry *660*
well testing *50*
**Offshore Exploration**
Beaufort Sea *49*
Eastern Canada, reservoirs *711*
Indonesia *5*
information sources *333*
lease bidding data *916*
risk analysis *714*
South China Sea *5, 341*
Western Canada *9*
world developments *13*
**Offshore Fields**
Alwyn *738*
Canada, east coast *151*
Claymore *156*
Eider *377, 997*
Ekofisk *453, 994*
Gulfaks *1000*
Hibernia *1006*
Highlander *713*
Hutton *961*
information sources *333*
Morecambe gas field *357, 702*
Oseberg field *450, 1000*
Piper *156*
Rough *357, 702*
Rankin *471*
Snorre *379*
South Valiant *999*
Tartan *713*
Tazerka field, Tunisia *143*
Troll *379*
Vanguard *999*
Vulcan *999*
**Offshore pipelines**
Alwyn to Frigg transmission system *738*
arctic *1008, 1020*
burial requirements *168*
design and operation *168, 173*
disposal methods, North Sea oil *715*
flexible risers for subsea wells *476*
flow measurement *105*
gas *173, 176, 185, 1023, 1024*

gel cleaning 1023
information sources 333
leakage determination 105
maintenance and repair 179
marine trenching 712
mechanical connection for side tap valves 1034
North Rankin, Australia 471
on-line integrity monitoring 98
Oseburg to Norway 1024
ROV-placed grout bag supports 1022
risk analysis 168
safety 168
SCADA, pipeline application 1015
self-burial 176
slug flow 166
Statpipe gas line 173, 1023
subsea connections 472
support and lift points 1025
underwater developments, new 1035
underwater method for side tap valves on pipelines 1034
worldwide construction 466, 1013

**Offshore Platforms and Rigs**
arctic drilling unit 374, 382, 703
buoyant platform design 375, 707
buckling design 709
compliant piled tower design 704
deepwater platform design 368–370, 704
design review 368–370
Eider field platform 997
Eider jacket design 377
Ekofisk subsidence 453, 994
fatigue analysis 156
floating drilling vessel 660
floating platforms 707
gravity-type structures 369, 1006
iceberg-resistant gravity structures 1006
information sources 333
Karin platform 379
LPG offshore loading facility 274
maintenance 702
Maxigee 996
mobile rigs as production units 454, 455
new technology review 998
Ocean Industry 1986 platform survey 671
Penrod 72, production/drilling vessel 1002, 1003
pile-foundation, no guylines 375
Piper flatform 153
production and storage units 143, 151
production/drilling vessels 1002, 1003
riser management 158
semi-submersible floating production vessel 449
single steel drilling caisson 374
Statfjord B 451
subsidence 453, 994
topside facilities, optimization 1005
V-fields development 999
vortex tube separator 996
wave force coefficients 448

**Offshore Production**
Arabian Gulf 1004
California 1001
Canada, east coast 151
crude oil foaming problems 452
development to year 2000 708
disposal methods for North Sea oil 715
enhanced oil recovery 149, 155, 995, 1004
expanders 153
floating production and storage units 143, 151
flowmeter performance 145
foam injection 149
future deepwater developments 705
gas injection 155
information sources 333
miscible flooding 995
mobile rigs as production units 454, 455
multiphase flow 145–147, 150
operational procedure 710
pressure drop behaviour 150
seawater filtration 157
subsea well completions 701, 713, 1000
subsea wells 154, 701
Tazerka field, Tunisia 143
two-phase flow 145
tools and techniques 91
transient test analysis 450, 699, 700
waterflooding 1004
wellhead components 152
world development, future 708
Xmas trees 152

**Oil Loss Control**
accurate flow measurement 94, 105
conference 92
crude acquisition and transportation 97
crude oil, water content measurement 100
crude production 97
floating covers 110, 111
gantry meter proving 109
metering accuracy 108, 109
loss control groups 96
Mobil Oil loss control unit 99
pipeline leakage, detection 98, 105
production distribution loss 107
radioisotope measurement 105
refinery losses 103, 105
review 93
sampling during transfer operations 101
stock loss control 95
tank gauging 112
temperature measurement, losses 106
terminal losses 103
vapour loss control system 104

**Oil Shale**
analysis 287
Australian deposits 866
Colorado shale 222, 288, 587, 869
combustion retorting 286
effect of calcined dolomite on pyrolysis 288
fluidized bed pyrolysis 288
ignition of bed with hot air 289
kerogen decomposition at sub-pyrolysis temperatures 587
oceanographic data 865
precision leaching 588
pyrolysis 222, 285, 288, 289, 291, 292, 589
shale oil 287
temperature profiles 285
thermal decomposition 587

**Petrochemicals**
Arabian Gulf structure 894
Nigeria, petrochemical development 298
Octol process 765
process handbook 768
two-phase liquid-liquid contacting 201
Canada's investment opportunities 601
Mexican development 602
oxygenated products from synthesis gas 297
surfactant species synthesis 296

**Pipelines**
ABS piping 730
anaerobic sealing 1027
British Gas transmission system 741
Cairo's gas distribution system 169
cathodic protection 312, 590, 728, 1012
$CO_2$ line for miscible flooding 182, 722, 723
coating systems 161, 162, 171, 172, 177, 474, 728, 729, 1010
compressor efficiency 746
compressors 719, 721, 746, 747, 1017
compressor stations, automation 1017
computerized optimization 1033
computer programme for pipeline damage reporting 463
construction forecast, 1986 716
corrosion problem solving 1108
corrosion-resistant 304
damage from high impedance 159
Danish natural gas lines 462
design and operation 174
dewatering operations 748, 749
distribution facilities information 1031
Douglass Pass 1009
drag-reducing agents 1038
electronic caliper pigs 178
electronic metering instruments 732
explicit friction factor equations 165
flow measurement 105
friction 718
frost thawers 1028
fuel dehazers 1036
fusion bonded epoxy coatings 1010
gas 159, 162, 169, 170, 173, 174, 177, 178, 180, 184–186, 461–463, 465–468, 473, 590, 715, 716, 719, 721–724, 726, 729–732, 734, 741, 750, 813, 880, 882, 920, 1010, 1023–1031
guided piercing tool 181
hand-held computer calculations 1014

**Pipelines** (*contd.*)
heavy oil transportation *725*
high pressure steel *880*
insulation *185, 460*
interior piping *734*
internal inspection *178, 184, 736*
international construction forecast *465, 466*
lateral loading *163*
leakage determination *98, 105, 464*
lowering an operating pipeline *1032*
lowering-induced stresses *717*
market power elements, natural gas pipelines *908*
maintenance and repair *180, 184*
metallurgical aspects *160, 174, 177*
mobile coating plant *474*
monitoring instruments *1009*
New Mexico *177*
NDT equipment *457*
Norman Wells line to Alberta *183*
oil loss control *92, 752*
on-line integrity monitoring *98*
oil loss control *97, 98, 105*
pigs *178, 184*
pipe bending computations, hand-held calculator *475*
pipe coating soil interaction *171, 172*
plastic pipe joining *1029*
polyethylene *169*
polyolefin *161*
pressure loss computation *473*
pressure regulator *1026*
process controllers *735*
remote location communications *743*
remote terminal units *739, 740, 743*
roughness ratios *165*
robotic inspection *736*
route survey techniques *461*
Seagas project *731*
SCADA, pipeline application *464, 470, 739, 740, 744, 745, 1011, 1015, 1016, 1018, 1019*
SCC resistance *160, 880, 883*
soil stress on coating *171, 172*
Spain *167*
standards *161*
street excavation and repair *1030*
stress monitoring *727*
trans-Alaska *175*
transcontinental line, US *724*
turbine control *735*
turbulent flow *718*
two-phase flow *473*
USSR construction *737*
uplift force-displacement *164*
uplift resistance *164*
valve motion synthesis *720*
Vibratherm, machinery support *1037*
World Oil's 1986 tubing review *458*
world-wide construction review *459, 465, 466, 733, 742, 1013*
Yamal, Russian control system *170*
**Pollution**
air *327, 328, 621, 764, 1121, 1122*
booms *331*
diesel engines *1121*
emission from hydrocarbon processing heaters *764*
grease plant air pollution control *621*
hydrocarbon pollution in clay *329*
hydraulic conductivity of clays, hydrocarbon permeation *329*
land *329*
lead phase-out *547, 548, 608*
liquid refinery waste *763*
measurements in water and sediments *611*
mobile lab., air pollution detection around Esso establishments *327*
Nigg terminal, effluent treatment *332*
$NO_x$ emission of diesel engines *328*
oil-loss detection, air *327*
petroleum effects in Arctic environment *612*
refinery waste *763*
sea *612–620*
skimmers *331*
sour water spills, $H_2S$ hazard *1122*
spark ignition versus diesel *1121*
spilled oil samples, forensic analysis *330*
water *206, 331, 611, 1122*
**Polymerization**
cyclohexanol for nylon 6 and 66 *1069*
phase separation, ethylene-polyethylene systems *524*
olefin polymerization *256*
Phillips process *256*
styrene *792*
two-phase kinetics *1069*
**Production**
acrolein for $H_2S$ scavenging *443*
adsorption/desorption of sulphonates *69*
alkaline flooding *63, 397, 402, 403, 417*
amphiphilic species for flooding *447*
bottomhole pressure determination *420*
bounded naturally fractured reservoir *66*
Buckley-Leverett problem *84, 695*
$CO_2$ flooding *59, 117, 118, 126, 393–395, 416, 427, 429, 445, 446, 685, 688, 689, 693, 697, 698, 970*
$CO_2$/hydrocarbon systems *117*
$CO_2$/waterflood recovery *693*
cation exchange in porous media *64*
ceramic proppants *89*
common aquifer for two fields *119*
composite reservoirs, interference test *67*
compositional model, general purpose *51*
cost reduction in operating costs *909*
crossbedded reservoir zones *424*
crossflow effect on waterflooding *72*
crosslinked fracturing fluid *55, 440, 441*
crosslinked hydroxylpropyl guar gums *410*
crosslinked polymers *431, 441*
crude loss control *97*
distribution loss *107*
drag-reducing polymers *401*
dynamic interfacial tensions in alkaline flooding *402, 403*
economics *909*
effect of temperature on oil/water relative permeability *409*
elliptical finger growth *71*
enhanced oil recovery *52, 62, 67, 79, 81, 83, 121, 123, 124, 126, 130, 296, 386, 388–400, 427, 673, 684–689, 693, 696–698, 970, 972–974, 976, 983, 984, 986–988, 990*
evaluation of value and cost of oil reserves *664*
facilities for Third World areas *668, 669*
ferric hydroxide precipitation damage *127*
field surveillance with PCs *678*
fire-water flooding *392*
fluid loss measurement at simulated fracture *55, 56*
foam, bubble size *132*
foam flow in porous media *113, 132*
foam-generating surfactants *391*
foaming characteristics of crude components *120*
formation/casing deformation *442*
formation damage, analysis and treatment *139*
formation damage prevention *127, 139*
formation evaluation *439*
fracture-assisted steam flooding *696*
fracture conductivity distribution *967*
fracture stimulation *430, 696, 969*
fracturing fluid analysis *73, 89*
fracturing system, inexpensive *969*
gamma-ray logging *144*
gasfield development *426*
gasflow in porous media *406*
gas-injection *414*
gas production and distribution *428*
gravel packing *141, 431, 432*
hydraulic fracturing *56, 78, 80, 85, 142, 405, 433, 674, 975*
$H_2S$ scavenging *443*
immiscible gas-injection *65*
*in situ* combustion *79, 116, 129, 133, 400, 435, 440, 444*
*in situ* gelation *126*
instability theory in porous media *422*
interlayer communication *405*
intermittent gas and liquid flow in vertical pipe *387*
intermittent gas lift *140*
iron stabilizers *127*
linear programming *662*
linear regression analysis *87*
liquid-liquid flow, relative permeability *676*

local saturation in porous media 672
London-van der Waals forces 76
maintenance of equipment 134, 981, 991
mass transfer fluctuations 401
micellar/polymer flooding 54, 69, 74, 85, 396
microprocessors 140
minimum miscibility pressure for reservoir fluid displacement 411, 429
mining techniques for heavy oil production 408
miscible fluid transport 81, 411, 429, 972, 983, 986–988, 990
miscible relative permeability curves 992
mobility control in $CO_2$ floods 59
mobility weighting 61
multilayer, rectangular reservoir 405
multiphase dispersion experiments 54
naturally fractured reservoirs 131, 425
nitrogen for EOR 386
numerical reservoir simulation 399
paraffin inhibition technique 991
Peng-Robinson equation of state 117
perforated casing 442
performance graphs 137
permeability of tight gas sands 679
phase behaviour 389, 691, 983
phase behaviour of heavy oils 389
plasticity 975
polymer injection 62, 74, 83, 123, 398, 680
polymer slugs, dynamic stability 74
porous dissolution reactors 404
postfracture behaviour of MHF wells 433
pressure transient analysis 66, 68, 419
primary cementing 667
proppant selection 430
radial fingering in porous media 675
relative permeabilities 136, 676, 690
reserves estimation, forecasting tool 655
reserves evaluation, value and costs 654
reservoir decline curves 137
reservoir sand reactions 63
reservoir simulation 51, 55–58, 60, 61, 70, 75, 82, 87, 115, 399, 400, 413, 414, 423, 425, 434, 681
reversible hydroxide uptake on reservoir rock 407
Safaniya Saudi oil field 123
sandstone-matrix acidizing 971
simulation model for black-oil 51
simulation techniques for financial models 968
single-phase flow in Berea sandstone 64
skin factor 989
solvent/oil miscibility 988
solvent slug size 987
spherical flow in reservoir systems 422
steam flooding 2, 116, 390, 391, 400, 677, 683, 687, 696
sucker rod guide 666
surfactants 447, 673, 978–980, 985
surfactant/polymer flooding 123
surfactant waterflooding 436
tarmat breakdown 437
tertiary oil recovery 76, 439
thermal analysis 133
thermal recovery processes 400
thermal reservoir simulation 423
thermodynamic modelling 117
thermoelastic stress 80
Third World facilities design 668, 669
three-phase coning study 663
transport in porous media 53, 54, 63, 64, 71, 74, 81, 83, 84, 88, 113, 114, 406, 422, 695, 986
two-phase flow in porous media 53
two-phase relative permeabilities, 409
unsteady flow in spherical reservoir systems 421
upstream collection 84
Ventura Avenue field 140
vibration measurements 981
Viking Kinsella B field 135
viscous fingering 422
waterflooding 41, 72, 80, 144, 392, 400, 414, 436, 437, 682
water/oil displacement characteristics 424
wavefront analysis 52
wellbore damage 789
wellbore control line 125
wellbore pressure response 131
wellbore-reservoir coupling 115
well completions 418, 701, 713
well stimulation, method and apparatus 124
well test analysis 86
wet combustion 438
wettability 923, 924, 978–979, 986
World Oil's annual review 956
World Oil 1986 sucker rod guide 666

**Properties, Chemical and Physical**

Arabian crude analysis 269
catalyst studies 271
compositional modelling 804
ethene-carbon dioxide-propane volumetric properties 272
interfacial tension 265, 807
interfacial tension measurements 807
liquid viscosities 536
molecular weight 266
multiphase equilibria 267
phase equilibria, water-hydrocarbon 538
thermal stability of base oils 808
thermodynamics of oil/brine/surfactant/alcohol 267
vapour pressure 1073
vapour pressure prediction method 537

**Pumps**

cylinder pressure transients in oil hydraulic pumps 562
for $CO_2$ pipelines 1021
review 977

**Refineries**

ART process 197
Bharat refinery, India 479, 480, 483–485, 497, 503, 529
bubble-column reactors 496, 758
carburization measurement 756
Chiba refinery, Japan 263
Claus unit design 493
computerized control 208
corrosion resistant alloy, TRIBOCOR 755
crude distillation unit 497
efficiency enhancement 489
energy conservation 202, 205, 491, 495
equipment costs 1042
fire protection and safety 759
fossil fuel conversion 194
fractionator control 208
heat exchangers 209
heavy crude, design 204
Lanzhou refinery 206
lead phasedown, effect on Saudi refineries 1043
leakage determination 105
maintenance and retro-fitting 766
mass and heat transfer aspects 754
mass transfer in a liquid-liquid CFSTR 201
Milford Haven tank fire 760
Mossmorran plant 770
naphthenic acid corrosion 891
NDT technique 756
oil loss control 92, 95, 103, 104, 752
pollution control at Bharat refinery 484
product quality control at Bharat refinery 484
reactor vessels 195
refrigerant exchanger design 209
retrofitting ethylene furnaces 492, 494
revamping for heavy crude 204
review 196
Ruwais refinery 200
sea water cooling at Bharat refinery 483
stress corrosion cracking 199
three-phase sparged reactors 754
Valero Refining Co. 1041
vapour loss control system in storage and handling 104
waste water treatment 200, 206
Watson refinery 208
worldwide review 207

**Refining**

ART process 197
benzene/toluene manufacture at Bharat refinery 529
Bombay High crude, processing 479
condensate computer model 198

**Refining** (*contd.*)
desulphurizer fractionator, computer control *482*
interfacial behaviour, caustic/crude oil systems *802*
liquid refinery waste, analysis *763*
NGL simulation *90*
nature and control of oil losses *103*
nomogram for steam generation estimates *1045*
oil loss control *92, 95, 103, 104, 752*
oil properties, correlation method *769*
packing pressure drop estimate *490*
process control *203, 484, 762*
process control guide *762*
process handbook *1044*
product quality control, Bharat refinery *484*
sieve tray testing *486*
structured tower packings *767*
supercritical fluids application *121*
trickle-bed reactors *244, 757*
trickling flow hydrodynamics in packed beds *487, 488*
two-phase flow *487, 488*
vapour loss control *104*
waste hydrocarbon recycling *481*
**Sampling**
density, manual measurement *191*
flow metering *193*
petroleum measurement *191–193, 541, 542*
rock property non-uniformities in cores *412*
wettability *923, 924*
**Safety**
fire protection *759*
Japan, safety devices for domestic gas supplies *320*
moisture evacuation during compressed natural gas discharge *319*
offshore pipeline risk analysis *168*
**Seals**
corrosion inhibitors, effect of *887*
elastomeric seals *887*
elastomer seals in water *850*
PTFE-based reciprocating seals *821*
radial-shaft seals *851*
**Shale Oil Production**
corrosion in Eastern oil shale retort *592*
denitrogenation *870–872*
Devonian shale stimulation *130*
enhanced oil recovery *121, 130*
hydrotreating Rundle shale oil *519*
ion exchange *870–872*
Paraho shale oil *589*
supercritical fluids application *121*
**Solvent Extraction**
aromatics recovery *257, 258*
Athabasca oil sands *259*
super-critical *258*
sulpholane versus diethylene glycol *257*
**Special Processes**
acetate membrane separation *263*
carbonization of petroleum residues *800*
ethane-propane mixture, simultaneous pyrolysis *532*
ethonal extraction from water *261*
flocculating fermentation *795*
hydrogen generation plant *223*
hydrogen-methane gas separation *262*
$H_2S$ on light hydrocarbon pyrolysis *1072*
methane fermentation of solid wastes *260*
microbial systems *79*
multivariable processing systems *793*
non-flocculating fermentation *795*
reverse osmosis membrane separation *262*
sebacic acid process *798*
thermal DeNO$_x$ process *531*
**Steam Cracking**
steam-$CO_2$ co-injection *876*
pyrolysis of *n*-hexane *873*
vacuum distillates *1053, 1054*
**Storage**
internal floating covers *110, 111*
losses due to temperature measurement *106*
methanol-gasoline blends *190*
underground natural gas storage *649*
vapour loss control system *104*
**Tankers**
crude oil transfers, water content *100*
crude oil variation analysis *99*
electrostatic hazards *187*
flexible risers for subsea wells *476*
oil loss control *92, 93, 95, 95, 97, 99, 101, 102*
physical loss from tankers *102*
sampling during transfer *101*
tank cleaning *187*
**Tanks**
cleaning *187*
critical design force evaluation *751*
hydrocarbon retrieval from tank bottoms *189*
internal floating covers *110, 111*
gauging *112*
North Sea oil storage tanks *188*
oil loss control *94*
organic acid intake *188*
phase separation *190*
water bottom growth *190*
**Tar Sands**
analysis *287*
Big Clifty formation, Kentucky *438*
enhanced oil recovery *121*
heavy oil production *438*
*in situ* reverse combustion *116*
supercritical fluids application *121*
Utah tar sand *116*
wet combustion process *438*
**Terminals**
nature and control of oil losses *103*
oil loss control *92, 93, 95, 103*
Karsto terminal *173*
Nigg effluent treatment plant *332*
Sullom Voe *452*
**Thermal Cracking**
asphaltene thermolysis *224*
CO production from coke *1057*
coke formation *229*
dodecane, thermolytic reactions *775*
ethane and propane interaction *777*
influence of sulphur compounds *225*
*in situ* combustion coke *874*
naphtha pyrolysis modelling *228*
hexadecane *1058*
*n*-hexadecane *230*
pyrolysis, pilot-scale experiment *773*
pyrolysis of Colorado shale *222*
pyrolysis of *n*-butane *774*
pyrolysis of *n*-decane *776*
pyrolysis of *n*-hexane *229*
pyrolysis of petroleum fractions *226*
pyrolysis of vacuum distillates *1053*
pyrolysis of volatile aromatics *227*
steam cracking *225, 1053, 1054*
upgrading Bombay High waxy crude *501*
visbreaking *501, 502, 1055, 1056*
**Training**
computers *606, 607*
loss control groups *96*
software selection for computers *606*
**Tribology**
abrasive wear *829, 844*
austenitic stainless steel *1086, 1087*
bearing analysis *822, 823, 826*
bearings, oil film dynamics *281*
bearing pad analysis *822*
boundary lubrication *846*
brake lining materials, testing *554*
dry sliding *552*
failure analysis of heavily-loaded gear *568*
film thickness, ends of a sliding bearing *827*
fire-resistant hydraulic fluids *555*
friction and axial force/displacement of elastomer seals *850*
friction behaviour of metals due to humidity *828*
grey cast iron wear *552, 837*
*in situ* deterioration experiments *824*
lubricated contact, aluminium against steel *862*
materials selection *824*
plate-like particle formation *825*
PTFE-based reciprocating seals, friction and wear *821*
rolling bearings, lubrication and performance *841*
rolling fatigue life *550*
single orifice industrial aerostatic bearings *826*
solid additive *550*
stainless steel sliding wear *553*
wear mechanism of heavily-loaded gear *568*
**Underwater**
diving, depth duration *706*

marine trenching *712*
new developments, review *1035*
pipeline side tap installation *1034*
ROV-placed grout bags *1022*
subsea pipeline connections *472*
subsea well completions *701, 713, 1000*
subsea well system *154*
**United Kingdom**
continental shelf activity *378*
**United States**
Alabama *670*
Black Warrior basin *670*
Anschutz Ranch East field, Utah *933, 934*
Austin Chalk productivity *969*
Cotton Valley sands *352*
crude and condensate production 1969–1986 *385*
current field size *122*
energy interdependence with Canada *898*
exploration and development costs *599*
exploration, discovery rate *12*
gas discoveries/reserves *670*
gas distribution network *726*
gas well production survey *884*
Gulf of Mexico projects *965, 1002, 1003*
investment analysis, US oil and gas producers *326*
Jackson, Mississippi *943*
large US integrated companies, their role *1118*
Michigan basin, drilling and geology update *921*
Mississippi *670*
natural gas perspective *896*
natural gas supply *549*
offshore California *1001*
offshore drilling and development projects *965, 1001*
Ouachita Mountains, Arkansas *925*
petroleum demand, long-term *910*
pipeline construction forecasts *468, 716*
Rocky Mountains *631, 656*
Saner Ranch field, Texas *696*
transcontinental pipeline *724*
Ventura Avenue field *140*
Wilcox formation *947*
**Valves**
corrosion-resistant alloy *755*
**Welding**
anti-weld properties of lubricants *580, 861*
coal liquefaction pressure vessels *520*
corrosion of low-nickel welds *305*
reactor vessels *195*